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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

HOANG, TU BA

ART UNIT	PAPER NUMBER
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3742

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/646,507	Applicant(s) AUNE ET AL.	
	Examiner Tu Ba Hoang	Art Unit 3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,8,10 and 11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6,8,10 and 11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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Response to Amendments/Arguments

Applicant's amendments/arguments filed July 12, 2004 have been fully considered but they are not persuasive as for the following reasons:

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4-6, 8, and 10-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 4-6, 8, and 10 recite the limitation "the side wall contacts" or "said side wall contacts". There is insufficient antecedent basis for this limitation in the preceding claim 1 or in the claim itself (i.e., amended claim 8). It is noted that in the preceding claim 1, there is only a citation of "at least one side wall contact" (at line 5) but not a plurality of "the side wall contacts" and also in the independent claim 8, there is only "at least one side wall contact" cited at lines 3-4.

In claim 11, "said bottom" recited at line 1 lacks antecedent basis from the preceding claim. It should be "bottom wall" instead.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 4, and 8 as amended are now rejected under 35 U.S.C. 102(a and e) as being anticipated by Johansen et al (US 6,440,193) cited by the Applicants (on page 1 of the specification). Johansen et al shows an electrode arrangement in an electric slag melting furnace (1) and a process for heating a mass of slag in such electric slag melting furnace, the electrode arrangement comprises vertical electrodes (6) supplied with alternating electric current (as set forth on page 1, in the paragraph [0002] of the instant application) or conventional means (as set forth at column 4, lines 9-11) and also intended to be submerged in the liquid slag bath (2) as set forth at column 4, lines 53-54, a plurality of side wall contacts or side electrodes (7) selected from consumable graphite electrodes (column 4, line 20, i.e., carbon bodies) along the sidewalls of the furnace (column 4, lines 16-17) with each pair of side wall contacts or electrodes (7) is

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individually supplied with electric current (column 4, lines 21-22, i.e., the two side wall contacts are electrically interconnected), wherein at least an alternating electric current is passed from at least one of the vertical electrodes through the mass of slag and to at least one of the side wall contacts or side electrodes (7) (i.e., the energy is transferred to the molten slag bath by resistance heating as set forth at column 4, lines 53-55). It is inherently that each side contact must be inserted into sealed openings in the side wall of the furnace for avoiding leakages.

Claims 1-4 as amended are now rejected under 35 U.S.C. 102(b) as being anticipated by Titus et al (US 6,127,645). Titus et al shows an electrode arrangement in an electric slag melting furnace (Figures 2(a) and 4(a) to 4(d)), the electrode arrangement comprises vertical electrodes (22 or 314a,b) supplied with alternating electric current (as set forth at column 7, lines 42-43) and also intended to be submerged in the liquid slag bath 330, a plurality of side wall contacts or side electrodes 86a,86b or 308a,b selected from consumable graphite electrodes (i.e., carbon bodies) along the sidewalls of the furnace with the side wall contacts or electrodes are all electrically interconnected and are equally circumferentially spaced around the furnace side wall as shown in Figures 4a-d. It is also inherently that each side contact must be inserted into sealed openings in the side wall of the furnace for avoiding leakages.

Claims 1-4 as amended are remained rejected under 35 U.S.C. 102(b) as being anticipated by Savov et al (US 4,246,023) cited in the previous Office Action. Savov et al shows an electrode arrangement in an electric slag melting furnace, the electrode arrangement comprises a plurality of side wall contacts or side electrodes 4a or 16 selected from carbon bodies (such as graphite, column 3, lines 3-4) along the sidewalls of the furnace with the side wall contacts or electrodes are all electrically interconnected and are equally circumferentially spaced around the furnace side wall. It is also inherently that each side contact must be inserted into sealed openings in the side wall of the furnace for avoiding leakages.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johansen et al (US 6,440,193) as applied to claims 1-2, 4, and 8 above in view of Savov et al (US 4,246,023). Johansen et al (US 6,440,193) discloses substantially all features of the claimed invention including the furnace bottom wall in the form of cooled panels. Johansen et al fails to show the furnace bottom includes a lining comprising an electrical insulating refractory material. The use of electrical insulating refractory material for lining the wall or bottom (i.e. wall lining) of electric arc furnaces is old and well known in the industrial electric arc furnace, as evidence. Savov et al shows in his furnace, the bottom wall includes a lining 5 or 15 comprising an electrical insulating refractory material. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize in the bottom wall or cooled panels in Johansen et al with the electrical insulating refractory lining taught by Savov et al in order to provide electrical insulation as well as thermal insulation while also to prevent any leakages.

Claims 5-6 and 10 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

REMARK

Since claims 7 and 9 had been cancelled, Applicant's arguments with respect to the rejection of these claims based on Savov et al and Paton et al (US 3,838,200) has been considered but are moot in view of the new ground(s) of rejection.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "[0026] In operation, alternating electric current **is supplied to electrodes 4** through contact clamps 6...", in the remark on page 5 of the amendment) (emphasis added) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

It is noted amended claim 1 recites "vertical electrodes **for supply of alternating electric current**" (at line 3) but not "alternating electric current is supplied to the electrodes". Thus, such amendment has raised new issues and considerations and the rejection of the process claims (8 and 11) over the prior art to Savov et al has been withdrawn.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "[0026] In operation, alternating electric current **is supplied to electrodes 4** through contact clamps 6...", in the remark on pages 5-6 of the amendment) (emphasis added) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). It is noted that since claims 1-4 are all directed to an electrode arrangement, such structural limitations

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of the electric slag melting furnace would have never been given any patentable weight. Thus, the recitations of "said furnace **having** vertical electrodes for supply of alternating electric current", "said vertical electrodes...", and so on have not been considered as cited positive limitations to contribute the claimed arrangement but only the cited "at least one side wall contact" or a plurality of "side wall contacts" that extends into the furnace interior through the side wall of the furnace. And base on this consideration, the Examiner's position is that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

As the claim amended, all claims are also rejected under 35 USC 112, second paragraph as set forth above.


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Hanas (US 3,885,082).

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tu Ba Hoang whose telephone number is (703) 308-3303. The examiner can normally be reached on Mon-Fri from 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Tu Ba Hoang
Primary Examiner
Art Unit 3742

October 01, 2004